Remarks

Claims 1-7 are currently pending in the patent application, and new claims 8 and 9 have been added. Applicant submits that the newly added claims are fully supported by the specification and originally-filed claims. For the reasons and arguments set forth below, Applicant respectfully submits that the claimed invention is allowable over the cited references.

In the Office Action dated January 25, 2008, two objections to the drawings are noted, and the following rejections are presented: claims 1-2 and 5-6 stand rejected under 35 U.S.C. § 103(a) over the Moser reference (U.S. Patent No. 6,853,696) in view of the Savoj reference ("Design of Half-Rate Clock and Data Recovery Circuits for Optical Communications Systems"); claims 3-4 stand rejected under 35 U.S.C. § 103(a) over the Moser reference in view of the Savoj reference and further in view of the Morgan reference (U.S. Patent No. 6,320,406); and claim 7 stands rejected under 35 U.S.C. § 103(a) over the Moser reference in view of the Savoj reference and further in view of the Lee reference (U.S. Patent No. 5,764,301).

Applicant disagrees with the objections to the drawings. Nonetheless, to expedite prosecution, Applicant believes that the replacement drawings submitted herewith, which give FIG. 1 a "prior art" label, render the first objection moot. With regard to the second objection to the drawings, the basis for the objection is unclear to Applicant. The Office Action states that, "Figure 2 does not explicitly show how the clock inputs to elements 21-24 are connected." Applicant observes, however, that the drawings along with the corresponding description in the specification clearly indicate that input signal D provides the reference clock for these devices, and that any further indication in the drawings is not necessary for one of skill in the art to fully understand the claimed subject matter. In support of Applicant's position reference is made to 35 U.S.C. § 113 and M.P.E.P. § 601.01(f), which indicate that "applicant shall furnish a drawing where necessary for the understanding of the subject matter sought to be patented." The Office Action has not indicated why one skilled in the art would not be able to understand the claimed invention. For these reasons, Applicant requests reconsideration and withdrawal of the objections to the drawings.

Applicant respectfully traverses the § 103(a) rejection of claims 1-2 and 5-6 over Moser in view of Savoj, and submits that these references are not properly combinable in a manner that would result in the claimed invention. It is admitted in the Office Action that the Moser reference fails to teach a frequency detector that includes double edge clocked bi-stable circuits coupled to first and second multiplexers, and that Moser further fails to teach a frequency detector having pairs of signals being output from the multiplexers. Applicant agrees, and additionally asserts that Moser fails to teach a frequency detector that includes a phase detector controlled by the pairs of signals provided by the multiplexer. In fact, Moser explicitly states that the disclosed frequency detector does not perform phase detection (*see* Col. 7:8-16).

The Savoj reference fails to cure these deficiencies. In particular, Applicant finds nothing in the Savoj reference to teach or suggest a frequency detector that uses double edge clocked bi-stable circuits as asserted by the Examiner (*see* Office Action page 4). Instead, the Savoj reference discloses implementing a phase detector using double-edge-triggered flipflops (*see* Figure 11 and Section 3.2.2). The Savoj reference then discusses how a phase and frequency detector (PFD) may be constructed using two of the phase detectors (*see* Figure 12 and Section 3.2.3). As such, the references cannot be read to teach all the elements recited in Applicant's claims.

Moreover, Applicant submits that no valid reason to combine Moser and Savoj has been presented. For example, Savoj teaches using multiple phase detectors to implement a combined phase and frequency detection circuit, whereas Moser explicitly separates frequency detection from phase detection using a multiplexer that selects the output of either the frequency detector (DFD) or the phase detector (PD), but not both. Furthermore, as discussed above, Moser explicitly states that the frequency detector does not include a phase detection function. As such, Applicant submits that one of skill in the art would find no reason to combine the references in a manner that would result in the claimed invention.

For at least these reasons, Applicant submits that the § 103(a) rejection of claims 1-2 and 5-6 is improper. Reconsideration and withdrawal of the rejection is therefore requested.

Applicant respectfully traverses the § 103(a) rejection of claims 3-4 over Moser in view of Savoj and in further view of Morgan, and submits that the Morgan reference appears to provide no teaching or disclosure that would cure the underlying deficiencies discussed above. Morgan is relied upon for allegedly disclosing an arrangement of NOT and NOR gates made of transistor pairs, but is not asserted for teaching any of the features missing from the underlying proposed combination. Therefore, for these reasons and for the reasons discussed above, Applicant submits that the § 103(a) rejection of claims 3-4 is improper, and requests that it be withdrawn.

Applicant respectfully traverses the § 103(a) rejection of claim 7 over Moser in view of Savoj and in further view of Lee, and submits that the Lee reference appears to provide no teaching or disclosure that would cure the underlying deficiencies discussed above. The Lee reference is relied upon for allegedly disclosing a phase detector coupled to a second charge pump coupled to a second low-pass filter, but is not asserted for teaching any of the features missing from the underlying proposed combination. Furthermore, Applicant submits that any combination including the primary Moser reference teaches away from the subject matter recited in claim 7. As discussed above, Moser discloses selecting either the frequency detector output or the phase detector output. There is nothing in Moser to teach or suggest combining the outputs of a frequency detector (that includes a phase detector) and another phase detector for coarse and fine voltage controlled oscillator control inputs as recited in claim 7. For these reasons and for the reasons discussed above, Applicant submits that the § 103(a) rejection of claims 3-4 is improper, and requests that it be withdrawn.

Applicant further submits that the art of record does not appear to teach or suggest the subject matter additionally recited in newly added claims 8 and 9. For example, claim 8 incorporates subject matter recited in claims 3 and 7, which are distinguished from the cited art for at least those reasons identified above.

Applicant notes that minor amendments were made to claim 6 and to Figure 4 for purposes of clarity unrelated to the objections and rejections made in the Office Action.

In view of the remarks above, Applicant believes that each of the rejections/objections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063.

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Attachment—3 Replacement Drawing Sheets